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Research Article

Graduate programs through the eyes of students: Challenges and needs

Maşide Güler[1], Zeynep Medine Özmen[2] and Mustafa Güler[3]

[1]*Trabzon University, Fatih Faculty of Education, Department of Science Education, Trabzon, Türkiye (ORCID: 0000-0003-4325-7394)*
[2]*Trabzon University, Fatih Faculty of Education, Department of Mathematics Education, Trabzon, Türkiye (ORCID: 0000-0003-0232-9339)*
[3]*Trabzon University, Fatih Faculty of Education, Department of Mathematics Education, Trabzon, Türkiye (ORCID: 0000-0002-4082-7585)*

Despite the proliferation of graduate programs in universities around the world, there are limited numbers of studies that have evaluated the current status of these programs. This paper attempts to examine the assessments of graduate students of their programs and of the graduate education process. A survey method was adopted and conducted with a total of 294 graduate students from different institutions and regions of Türkiye. The results reveal that the students reported academic challenges, time-related issues, and supervisor and colleague-related problems. Moreover, the students indicated a need for academic writing support, effective feedback, access to databases, and support with materials. The study discusses the measures that may be taken to increase the quality of graduate education.

Keywords: Challenges; Educational process; Graduate education; Graduate programs; Student needs

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1. Introduction

The role of universities has evolved over recent decades from a focus on teaching and research as part of a global community of knowledge to assuming a role in regional economic development (Al-Youbi et al., 2021; Etzkowitz & Leydesdorff, 1999; Gunasekara, 2006). In order to fulfill these various roles, graduate degree programs are needed to support scientific developments and to develop qualified scientists (Khodabocus, 2016). In this regard, Germain-Alamartine (2019) stressed that doctoral programs overlap the missions of universities in relation to both education and research. In other words, graduate education is a critical tool for universities in participating in regional development (Germain-Alamartine, 2019), as well as a growing trend (Garcia-Quevedo et al., 2012) due to their capacity to produce a high percentage of a university's research results (Enders, 2002) and to address a shortage of career opportunities (Etmanski et al., 2017).

Graduate education is a process that generally begins with master's degree studies and continues with doctoral education for those who want to progress further in their fields. After completing a graduate program, candidates achieve recognition of expertise in their professions, while the top qualifications related to their field are completed after doctoral education. Darley

Address of Corresponding Author

Maşide Güler, PhD, Trabzon University, Fatih Faculty of Education, Department of Science Education, 61335, Söğütlü, Akçaabat, Trabzon, Türkiye.

✉ masideguler@trabzon.edu.tr

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(2021) underlined the importance of graduate education, noting that "the PhD is increasingly becoming the entry requirement for those seeking to teach at the university level (p.1)".

Worldwide, the number of students enrolled in graduate programs is growing exponentially. Parallel with this development, there has been a significant increase in research about graduate programs in recent years. Since graduate education is seen by the students as a short career (Etmanski et al., 2017), it leads to certain problems. In this sense, graduate education entails many challenges, such as hard work, self-sacrifice and communication. In considering these challenges, Khodabocus (2016) stressed in particular that a lack of encouragement at the higher education level impacts the decisions of African students to pursue higher level studies. Cornér et al. (2017), on the other hand, point out that both the quality and the quantity of doctoral supervision have been identified as central determinants of success in doctoral programs and stress the need to conduct further research about the effectiveness of supervision and the burnout levels of graduate students.

Many studies in the literature have delved into participation in graduate programs, with most of these studies focusing on doctoral students (Barnes et al., 2010; Darley, 2021; Etmanski et al., 2017; Khodabocus, 2016). For instance, Barnes et al. (2010) examined doctoral students' perceptions of the positive and negative attributes of their supervisors. Their findings indicated that most of the students had positive opinions about their supervisors, while those who reported negative opinions identified their supervisors as being inaccessible, unhelpful, and uninterested. From another perspective, Darley (2021) conducted an evaluation and reflective analysis of doctoral business training in Africa, with the goal of illustrating the context and structure of African PhD programs. It was suggested that entry characteristics (family obligations, work experience, self-financing, attending the program) had implications for student preparedness.

On the other hand, an analysis of the studies conducted by graduate students [GSs] in Türkiye revealed that only a limited number of researchers were interested in this subject, and that the existing studies were typically conducted in the context of specific universities, faculties or departments (e.g., Özmen & Aydın Güç, 2013; Sayan & Aksu, 2005). As such, it can be argued that there is a need for further studies to be conducted in this field in the Turkish context. As Pyhältö et al. (2012) point out, studies involving different cultures and different university faculties will provide opportunities for countries to determine possible factors needed to provide for effective graduate education. Moreover, evaluating the status of current graduate programs from the perspective of GSs may increase efficacy and reduce dropout rates from graduate programs (Pyhältö et al., 2012), which is a comprehensive and complex process. The present study aimed to respond to this gap in the literature by examining the current status of graduate programs in Türkiye through the eyes of graduate students.

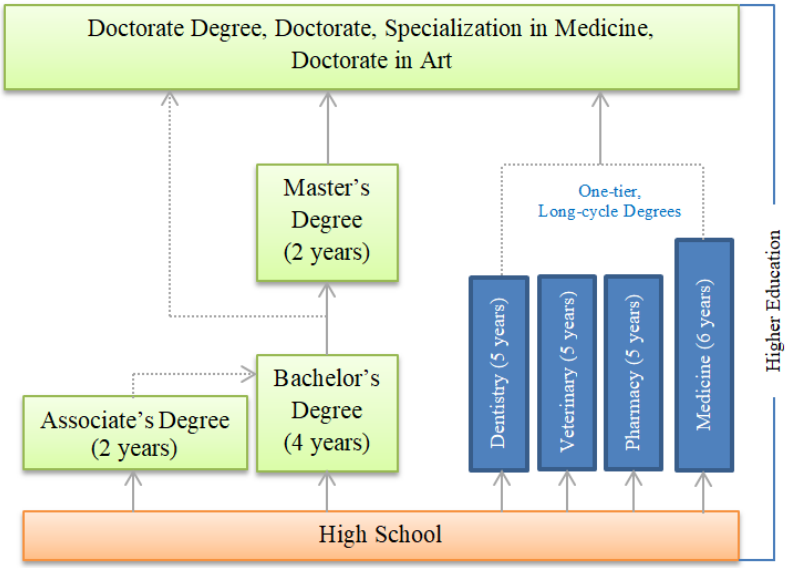
2. Graduate Programs in Türkiye

After completing their high school education, students in Türkiye have the option to study for 2 years in a vocational school (e.g., studies in business, health, tourism, etc.); or they may be admitted to a university faculty according to their preferred occupation on the basis of university entrance exam results. While some undergraduate programs can last 5 or 6 years in some faculties (such as dentistry, medicine, pharmacy, etc.) most programs are completed in 4 years. During their undergraduate studies, students receive education in their chosen field and develop knowledge and skills in accordance with their preferred profession. After completing the undergraduate level, students who wish to continue their academic studies may apply to a graduate program. Acceptance to a program is granted based on the results of the ALES exam, which is similar to the GRE in the US. Students who continue their graduate studies at a university and begin their academic careers may even gain the opportunity to become a faculty member.

In the Turkish context, the institute is responsible for overseeing graduate programs. Institutes are independent of university faculties and are divided into different branches, according to fields such as social sciences, science, health sciences and educational sciences. These four basic branches

are also supplemented by a small number of institutes with more specialized subject areas (e.g., the oncology institute). Upon completion of their undergraduate education, as described previously, students may advance to graduate programs to study for a master's (minimum 2 years, maximum 3 years) and/or a doctoral (minimum 4 years, maximum 6 years) degree. Students are required to complete a required number of courses, including foreign languages, as determined by the institutes at their universities. Students who complete the coursework for their master's degree can then proceed to the thesis stage. Moreover, to apply for a doctoral program, it is generally required to have completed a master's degree in most programs. However, some institutes are able to accept very successful undergraduate students directly to a doctoral program, as with students who have graduated from dentistry, veterinary, pharmacy and medicine undergraduate studies. Figure 1 summarizes the undergraduate and graduate education process in Türkiye.

Figure 1
Higher education system in Türkiye



According to data from the Turkish Higher Education Council, as of December 2023, there are 6.4 million students enrolled in four or more years of undergraduate education, while more than 540,000 students are enrolled in graduate programs (Council of Higher Education, 2024). Moreover, the data for the last 15 years show that the number of students in graduate programs has increased approximately four times (Günay, 2018). However, the poor performance of Türkiye in world university rankings is often brought to light (Yudkevich et al., 2016). In this regard, we believe that the results of the present study will reveal some of the factors in the shortcomings of graduate education in Türkiye from a different perspective.

3. Literature Review

A significant number of studies on graduate programs highlight the need to improve the quality of the educational process. The main emphasis in this regard is that the coordinated development of the quality of graduate programs alongside a national economy can be seen as an indicator of the challenges of the modern world (Zhiqi et al., 2023). It can be argued that this emphasis has motivated researchers to examine the lived experiences and problems of graduate students in order to improve the quality of their programs. For instance, a study by Özmen and Aydın Güç (2013) examined the difficulties experienced by doctoral students in faculties of education, as well as the strategies they developed to cope with these difficulties. To achieve this aim, the researchers conducted interviews with 10 doctoral students studying in the fields of science and mathematics. According to the results, the students often reported problems with their advisors, language-related issues and difficulties with time allocation; and that they made sacrifices to cope with these

difficulties. In another study, Khodabocus (2016) revealed that many African students discontinued their doctoral studies due to lack of motivation after completing their master's thesis. He pointed out that the need for the dissemination of doctoral education in Africa is increasing alongside the developing economy, calling on academics to encourage master's students and on universities to renewing themselves in areas such as advising, peer communication and international communication. In another study, Sato and Hodge (2009) focused on six Asian doctoral students at two American universities and revealed that the culture of the country was an important factor affecting their academic experience. They reported that cultural recognition, academic writing and language impacted the process of drafting a doctoral dissertation.

In addition to these studies, which were conducted with a more limited number of students, Pyhältö et al. (2012) conducted an investigation with a larger sample of 669 GSs in Finland. The study aimed to identify the difficulties faced by doctoral students studying in the faculties of fine arts, medicine and behavioral sciences of a university and addressed the differences between the faculties in terms of the reported challenges. The results revealed that the students mentioned problems such as inadequate experts in the field, supervision, the scholarly community and access to resources. In particular the students in the faculty of behavioral sciences often brought up problems such as advisors and social interaction, whereas in the faculty of fine arts, the problem of access to resources was emphasized. Based on their findings, the researchers suggested that national or international studies should be conducted in a wider scope, to include perspectives from different cultures. Another issue discussed in their study was that open-ended questions provided more valuable and in-depth data. In the current study, we took both of these suggestions into consideration and decided to shape the research to include similar methods and different faculties.

In another study conducted in the African context, Darley (2021) presented a reflective analysis of doctoral training to generate a deeper understanding of the challenges, structure, and process in increasing doctoral education in the field of business/management. Darley (2021) evaluated the context and structure of PhD programs in Africa according to four imperatives: quantity, quality, efficiency (e.g., dropout rates, completion rates), demographic transformation and equity (e.g., gender equity) in program policies. The researcher offered a number of recommendations about the PhD process, including matching PhD production to resources; dealing with human and capital resource shortages; providing guidelines and stringent regulations for PhD supervision; giving adequate financing to support doctoral students; collecting data to inform policymaking; exploring opportunities to enhance teaching and learning; and initiating women in doctoral education.

A further study by Cornér et al. (2017) aimed to discover how supervision (in terms of both quality and quantity) relates to an increased or reduced risk of burnout during the doctoral education process. In this regard, they underlined a gap in supervision activities as associated with lack of wellbeing such as burnout. In their study, a total of 248 doctoral students from three Finnish universities representing social sciences, arts and humanities, and natural and life sciences responded to a Doctoral Experience Survey. They found that the respondents experienced lack of satisfaction with supervision and equality within the researcher community and a low frequency of supervision as related to experiences of burnout. Further, these experiences of burnout were connected to students' attrition intentions; attrition intentions were further related to the source of supervision, the form of thesis, and inadequate supervision frequency. Given the results of their study, the researchers suggested that qualitative interviews might be helpful in mapping out the dynamics related to the process and envisioning a research community that supports doctoral students and enhances their wellbeing throughout their doctoral journey.

Additionally, some studies have examined the role of supervisor-GS relationships (e.g., Al Makhamreh, & Stockley, 2020; García-Suaza et al., 2020) while others focused on affective factors (especially mobbing, stress, mental health problems and burnout) and their effects on the graduate education process (Charles et al., 2022; Erdemir et al., 2020). From another perspective, numerous

studies have delved into the academic writing abilities of local (e.g., Tremblay-Wragg et al., 2020) and international students (e.g., Doyle et al., 2018). Although these studies were conducted in various countries, most of them took a common stance of seeking opportunities to facilitate the quality of academic outcomes.

Taken altogether, the existing literature discusses important issues and imperatives regarding graduate programs. However, these studies have primarily been conducted either with small sample sizes or with students from a limited number of programs or educational levels (master's or doctoral). Additionally, most of the studies conducted with large samples used quantitative research designs. To fill this gap and provide deeper understanding, the present study examines the challenges and needs of graduate programs by collecting primarily qualitative data from a larger group of participants in different programs and at different levels. It is anticipated that the results of this study will yield important suggestions to policymakers for graduate education in developing countries such as Türkiye.

3.1. The Aim

The aim of this study is to investigate the graduate education process in Türkiye from the perspective of graduate students, focusing specifically on (a) comparing the perception of the effectiveness of graduate programs (b), revealing the challenges that GSs experience, and (c) uncovering the points where students need support.

4. Method

For the purposes of this study, the data were generated from a comprehensive survey-based instrument aimed at an in-depth understanding of the experiences of GSs. This paper is designed in both quantitative and qualitative patterns to examine the perspectives GSs in term of challenges and needs during their educational process. Quantitative part of the study aimed to understand whether their perception regarding the effectiveness of the programs they receive education varies. Qualitative studies targets to understand the experiences of a set of people (Merriam & Tisdell, 2015), therefore, qualitative part of this study aims to understand the challenges that GSs experience, and the points they need support. The study included survey data collected from 294 GSs in different regions and faculties of Türkiye. All of the participants were in diff erent phases of their graduate studies, including doctoral and master's degree programs. Details about the GSs are presented in Table 1.

In order to provide an overall picture, the goal was to access a sufficient number of GSs enrolled in both master's and doctoral programs. In addition, as can be seen in Table 1, it can be stated that the institutes in which the participating GSs were enrolled were diversified.

4.1. Data Collection Tool

A survey composed of two parts was used as the data collection tool. The first part of the tool was designed to solicit demographic information from the participants. In the second part, the survey asked the respondents to respond to two open-ended questions soliciting their opinions regarding their graduate programs. The questions were open-ended as a means to elicit their experiences in the process and what they expected versus what they found. Some additional questions aimed at identifying the challenges and needs of GSs were also included. The GSs were also asked to respond to a Likert type question reflecting their ranking regarding the quality of the education they have been receiving. The questions are provided in Appendix 1. The questionnaire was shared with the participants via Google Forms. The questions in the form were structured in such a way that they required an answer in order to ensure that participants would respond to all of the questions and to prevent data loss.

Table 1
Profile of survey respondents

Student Characteristics	*Number*	*%*
Gender		
Male	108	36.7
Female	186	63.3
Institution		
Educational Sciences	68	23.3
Science	84	28.7
Health Sciences	47	16.1
Social Sciences	93	31.8
Other	2	0.1
Faculty		
Education	73	24.8
Health, Medicine, Dentistry or Nursing	50	17
Engineering	39	13.2
Science	24	8.2
Business	22	7.5
Literature	13	4.4
Law	13	4.4
Religion	12	4.1
Forestry	8	2.7
Architecture	8	2.7
Agriculture	7	2.4
Communication	6	2.1
Other	19	6.5
Registered to		
Master program	86	29.3
Doctoral program	208	70.7
Stage		
Taking course	75	25.5
Drafting thesis or preparing proposal	219	74.5

4.2. Data Analysis

Qualitative and quantitative data sources were generated from the participants in the manner described in the previous section. The analysis of the qualitative data took place in two stages. The first stage consisted of identifying common themes, while the second stage entailed identifying codes. Two independent researchers were actively involved in both stages. After the completion of the first stage, a meeting took place to discuss progress. At this stage, the themes were not on in depth, but the themes created by the researchers were examined in terms of which reflected the content better. In other words, a skeleton framework was formed. At the end of this stage, it was observed that both researchers had reached common themes but had used different nomenclature. Thus, common names were agreed upon. In the second stage of the analysis, the transcripts were coded line-by-line with similar codes in terms of the themes, in accordance with the practice described by Barbour (2008). The source of the quantitative data for the study was the students' responses to the Likert question that measured the quality of the educational stage in which they were studying. Statistical analyses were used to determine whether the qualifications of the participants in the respective graduate education stages differed between stages and between institutes. The *t*-test was used for the normal distribution of the data to measure whether there were differences between students registered in master's versus doctoral program. One-way ANOVA was used to evaluate the statistical difference among the institutes. For homogeneous groups, the Tukey test was used, while Tamhane's T2 was applied for non- homogeneous groups.

5. Results

5.1. GSs' Thoughts on the Quality of their Graduate Programs

In presenting the data related to the quality of their education from the perspective of GSs, firstly, the general data from the master's and doctoral students were examined, and then similar processes were conducted considering the various institutes. The results obtained from the Likert question given by the participants regarding the quality of the graduate program in which they were registered are presented in Table 2.

Table 2

T-test result of the perception of students towards the quality of their graduate programs

Graduate program	*N*	*Mean*	*SD*	*t*	*df*	*p*
Master's program	86	3.59	1.16	−0.167	287	.86
Doctoral program	208	3.61	1.01			

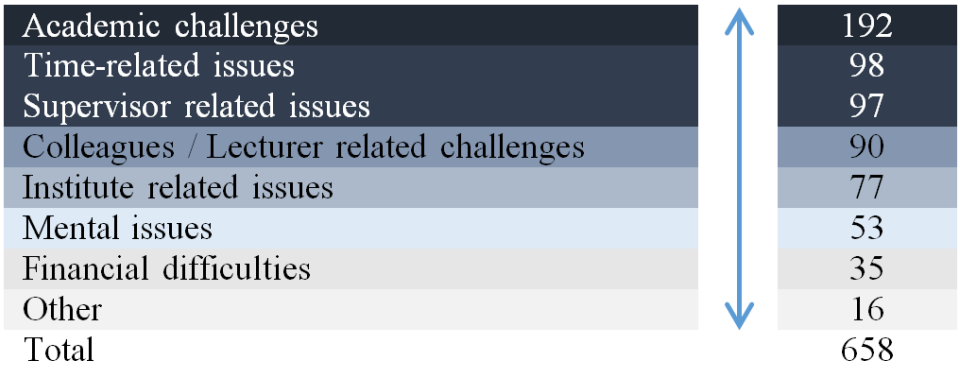
Table 2 shows that the students' satisfaction levels in master and doctorate programs were very similar. Based on the scores given by the students, it can be said that their satisfaction was above average, but close to average, for both programs. In addition, no statistically significant difference was found between the two programs. In order to determine whether students' thoughts on the quality of the education they were receiving differed among institutions, a one-way ANOVA test was conducted. Tamhane's T2 test results showed that there was no difference among institutions, as the *F*-value from the ANOVA = 1.75 with an associated probability of .17. The ANOVA results conducted to examine whether there were differences in institutes between doctoral students showed similar results as those of master's students. The results of the Tukey test showed that the opinions of doctoral students in the different institutes concerning the quality of their programs did not differ statistically ($F = 1.86$, $p = .14$).

5.2. GSs' Reports on the Challenges They Face during their Graduate Programs.

The participants' experiences in their graduate programs were categorized into eight overarching themes: supervisor related challenges, colleague or lecturer related problems, institute related challenges, financial difficulties, time related issues, academic challenges, mental issues, and others. Figure 2 summarizes the frequencies related to these themes.

Figure 2

Frequencies of challenges of GSs



5.2.1. Academic challenges

In terms of academic challenges, eleven codes emerged from the responses of the GSs: (1) determining research questions, (2) (in)efficiencies of the graduate courses, (3) culture of academic writing, (4) data collection process, (5) tasks assigned to the GSs, (6) literature review and search, (7) number of courses taken, (8) foreign languages, (9) courses unrelated to the subject, (10)

knowledge of software, and (11) publication requirements. The distribution of the frequencies of the codes in terms of academic challenges is presented in Table 3.

Table 3
Academic challenges of the GSs

Academic challenges	*Frequency*
Determining research questions	39
(In)efficiencies of the graduate courses	35
Culture of academic writing	33
Data collection process	22
Tasks assigned to the GSs	21
Literature review and search	10
Number of courses taken	9
Foreign language	9
Courses unrelated to the subject	9
Lack of knowledge of software	3
Publication requirements	2

It can be seen from Table 3 that, in terms of the academic challenges they experienced, most of the participants reported difficulties determining their research problems. In this regard, one of the GSs, C2, stated that, "One of the biggest challenges during my graduate program was the research questions. This is truly a situation that requires careful consideration. And unfortunately, I had to change my thesis topic once."

The second most frequently repeated code indicated that the courses taken during the postgraduate programs were seen as ineffective. For example, C89 asserted that:

> My expectation was that the academy would benefit me. [However,] I took lessons from faculty members who were incompetent in their fields. There were some lessons in which students made presentations without contributing anything of their own. These don't seem to contribute much to our academic life.

In addition, some of the master's and doctoral candidates stated that they had difficulty with academic writing due to a lack of an academic writing culture. In one instance, C1 stated that:

> Writing is one of the things I struggle with the most. Trying to translate studied and known subjects into academic language is a complete disaster for me. A person without any training on this subject will have a very difficult time overcoming this problem. Despite being in a PhD program, this is what challenges me the most.

Another of most frequently emerging codes among the academic challenges of the GSs was data collection. Regarding this issue, some participants stated that they had difficulty in accessing data sets, while others referred to the experimental processes. For example, C170 explained that:

> As you know, we have to do experiments while collecting data in the Chemistry department. Sometimes things don't always go well in our experiments. In that case, we have to repeat the experiment, which is a very tiring process.

Additionally, some of the participants underlined that the tasks they were assigned in the courses were a challenge. In this sense, C252 expressed that:

> Before I started graduate school, I was hoping for a more interactive education. However, when the courses began, I realized that we were given tasks and expected to prepare assignments, rather than being given information about the subject. In this sense, there could have been more effective content in the courses.

Other codes found under this theme were related to students not knowing how to search the literature and use databases; the high number of courses they had to take; the fact that those courses were not related to the field; the difficulty in translating from English and foreign languages other than English; the lack of knowledge about the software (such as SPSS) that they needed to use; and finally the publication requirement for graduation.

5.2.2. Time-related issues

In terms of the challenges experienced by the GSs, the second theme that emerged from the reports, following academic challenges, was time-related issues. Under this theme, travelling, working, time management, time for a personal life, getting off from work, and termination of studies emerged as codes from the responses. The distribution of the frequencies of the codes in terms of time-related issues is presented in Table 4.

Table 4
Time-related issues

Time-related issues	*Frequency*
Travelling	31
Working	29
Time management	16
Time for a personal life	12
Getting off from work	6
Termination of studies	4

As can be seen in Table 4, two of the codes (travelling and working) were more prominent than the others. Some of the participants, for instance, stated that the province where they were enrolled in a graduate program and the place where they lived were distant, necessitating a significant amount of time traveling. In addition, some of the participants stated that trying to maintain employment and while enrolled in a graduate program process was a major challenge. A sample expression reflecting both situations is as follows:

> I am also a teacher at MoNE. The journey between the province where I work and the province where I study takes about 7 hours. Therefore, attendance in the courses every week is the most difficult thing for me, because I teach too many classes at school. [C107]

In addition to these two codes, the GSs referred to difficulties related to time management. For example, C91 stated that, "The most difficult issue for me was time management, because I failed to use time effectively and efficiently. It cannot be said that I haven't brought such a skill from my undergraduate education."

Compared to the codes mentioned above, the participant responses included problems such as being unable to spare much time for their personal lives, inability to obtain permission from their employers to attend classes or meetings with their supervisor, and finally, reaching the legal expiration of the education period.

5.2.3. Supervisor related issues

When the GSs were asked to indicate the challenges they experienced during their graduate programs, it was found that some of them consisted of issues related to their supervisors. The codes obtained within the framework of this theme were communication, (in)adequacy of the supervisor, resistance of the supervisor to innovations, over-expectations from the supervisor and being busy. Table 5 contains a summary of the data obtained in this regard.

Table 5
Supervisor-related issues of the GSs

Supervisor-related issues	*Frequency*
Communication	54
(In)adequacy of the supervisor	27
Resistance of the supervisor to innovations	9
Over-expectations by the supervisor	4
Being busy	3

When the responses related to the supervisor-related issues are analyzed, it can be seen that most of these involved a lack of communication between GSs and their supervisors. For instance, C103 stated that:

> Of course I have difficulties. For example, one is my relationship with my supervisor. The bilateral exchange of ideas is quite low. Not being able to communicate easily caused me difficulties with continuing the process. This is also one of the obstacles for me to continue scientifically after my master's degree.

Besides, some of the participants claimed that their supervisors are / were inadequate in terms of their academic backgrounds. In this context, while some of the supervisors were considered by GSs as inadequate in the subject area they wanted to study, some of them were defined as inadequate to be an academician overall. In this sense, C17 asserted that:

> The supervisor was incompetent in planning and conducting academic research and statistical methods. I am practically teaching the lecturer. My only expectation was that the professor would be a good guide in planning, conducting and analyzing academic research. For example, the lecturer does not even know how to calculate the sample size for research. When I say that it will be like this and that, he looks at me with a blank stare (sorry, I would not want to say this to a person who has finished his PhD, but this came to my mind as the idiom that best explains the current situation).

Apart from these responses, the main challenges expressed by the participants were that the supervisor did not lean towards innovative studies, having over-expectations from the GSs, and being too busy.

5.2.4. Colleague or lecturer related problems

Another one of the challenges experienced by the GSs was the difficulties they had with their colleagues and/or the lecturers with whom they took a course. The codes obtained under this theme are presented in Table 6.

Table 6
Colleague / Lecturer related problems

Colleague / Lecturer related problems	*Frequency*
Behavior and attitudes	52
Extra workload	18
Lack of teamwork culture	12
Relationships of colleagues with the supervisor	8

The most prominent responses under this theme were related to the attitudes and behaviors of colleagues or lecturers. A significant number of the participants stated that lecturers exhibited negative behaviors towards them at school, and some of them reported that they were mobbed. For instance, C290 expressed that:

> (I am) Doing all the work of the professors until the tea and coffee service. Sometimes I wish I were running a tea shop. Besides, you can never claim your rights. The lecturer gets angry about something, even though you are not at fault at all, he humiliates you in public by saying, "Shut up, don't answer me!" even though you are completely innocent... I dreamed of a freer and more respectful environment. Now I am oppressed by our guy in every respect.

In another response, C13 stated that, “Professors expect us to think like them. Also, when we choose a course, they overreact when we don't take a particular lecturer's course. This reaction, in other words, was mobbing.”

Some of the participants also indicated that they were working as research assistants at the university, and therefore they had to do additional work assigned by their colleagues from the institute where they worked during their graduate programs. In this respect, C7 explained that:

> The most challenging factor in this process was the extra work that came with the job of a research assistant. These were the jobs assigned by the department, institute, dean's office and most importantly, by the lecturers other than my supervisor. The laboratory courses we attended in place

> of the lecturers, the work of organizing congresses, exam assignments, preparing exam programs or syllabi, tasks such as institute exams or paperwork checks, were the most important obstacles to my graduate studies.

The other response coded under this theme was the lack of an adequate teamwork culture in the institute. Some of the participants indicated that this situation caused them to work alone while doing their academic studies. Interestingly, a small number of the participants also reported that their supervisor's negative relationships with other professors negatively affected their academic life. For example, C40 stated that:

> The only factor is that the professors turn against me because the supervisor I have chosen is outside the grouping that takes place among the academic staff in the department (not participating in this grouping). Some of the simplest examples: Not caring about you in the community and expressing this. Lowering your score and sending you to the exit test even though you have passed the course with the required score, etc.

5.2.5. Institute related issues

Some of the GSs referred to institute-related issues as problems they encountered during their graduate education. The codes under this theme emerged as lack of infrastructure, procedures and policies, limited databases, and lack of opportunities. The frequencies regarding this theme are shown in Table 7.

Table 7
Institute related issues

Institute related issues	*Frequency*
Lack of infrastructure	24
Procedures and policies	19
Limited databases	17
Lack of opportunities	17

The main problems in terms of institute-related issues were lack of infrastructure. In this regard, some GSs mentioned the inadequacy of university databases, while others mentioned the limited laboratory facilities. For example, C163 stated that:

> When I started my graduate program, I expected to make more progress. I could not choose my thesis topic in the field I wanted due to the lack of laboratory facilities. This prevented my thesis work from being as in-depth as expected.

In addition, some of the participants stated that the procedural processes related to the institute constituted an important obstacle, while some participants stated that their institutions did not provide enough opportunities for them.

5.2.6. Mental health issues

Among the problems experienced by the GSs during the educational process, the theme of mental health issues emerged when they drew attention to affective factors. The resulting codes are summarized in Table 8.

Table 8
Mental health issues

Mental health issues	*Frequency*
Stress	21
Motivation	12
Burnout	7
Adaptation	5
Confidence	2
Feeling worthless	2
Academic procrastination	2
Future anxiety	2

The participants in the study generally emphasized the stress factor as a challenge. The responses were essentially in the form of a lack (e.g., motivation, confidence) or excess (e.g., academic procrastination, future anxiety) of the affective factors summarized in Table 8. For example, one participant's statement about stress was as follows:

> Especially during the thesis phase, you are under a lot of stress. Your supervisor's support is needed during this process, and it is very important that they guide you. Feeling alone in this process can make your stress worse and worse.

5.2.7. Financial difficulties

The codes obtained under the theme of financial difficulties are outlined in Table 9.

Table 9
Financial difficulties

Financial difficulties	*Frequency*
Lack of income	16
Limited funding	8
Materials expenses	6
Participation in academic activities	5

When Table 9 is analyzed, it can be seen that the financial difficulties of the participants were mostly due to insufficient income, followed by the inability to find sufficient funds to conduct their research. In addition, high prices of materials (for example, experimental materials), as well as participation fees for scientific activities such as workshops and symposiums, were reported.

5.3. GSs' Reports on Their Needs during Their Graduate Programs

Finally, a total of ten themes emerged from the responses of the participants' regarding their needs during graduate education: Academic writing support, feedback, reaching and searching databases, material and learning of software, implementation of the study, layout, frequent meetings with the supervisor, moral support, financial support, and improving foreign language. Figure 3 summarizes the gathered data.

Figure 3
Frequencies of the needs of GSs

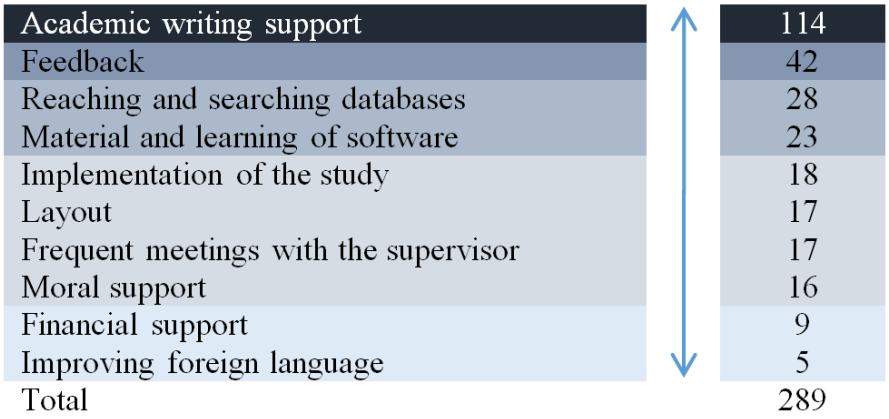


Figure 3 shows that the GSs most frequently expressed a need for support in academic writing. The participants referred to a range of needs, such as deciding on the (sub)heading of an academic work, choosing an appropriate framework and method, and making citations. For instance, C116 asserted that: "I have difficulty in quoting; giving references without manipulating the meaning in direct and indirect expressions is a point that requires attention. I need support on this matter." In a similar manner, C11 stated that "I need support on how to avoid plagiarism. For example, I don't know how to write an original and clear thesis." In another response, C267

highlighted that "I need help in establishing the findings in line with the model I stated that I adopted in the thesis proposal and in writing the introduction and discussion section fluently."

The second most emphasized issue in line with the needs of the GSs was feedback. For instance, C82 stated that "I was blind driving while practicing in the field. I would have loved to have a supervisor who followed my practice and gave feedback on its stages." On the other hand, some of the participants underlined the need for learning by accessing and searching databases, while others pointed to materials and learning of software. The GSs who needed support with materials most often reported not knowing how to use tools and equipment for conducting laboratory or field studies. Others stated that they needed support in learning software such as programs used for analyzing data (SPSS, etc.) and reporting on a study (Microsoft Office, etc.). In terms of implementation of their studies, the GSs most often highlighted the needs for accessing data, finding samples, and repeating experiments. In terms of the process of reporting on academic studies, the other codes under this theme included needs related to the layout of academic studies, as well as meeting material and moral expectations. The GSs' desire to have frequent meetings with their supervisors was another need they expressed. Finally, a small number of participants stated that they needed support to improve their foreign language skills.

6. Discussion and Conclusion

The current study aimed to identify the difficulties experienced by GSs in their graduate programs and to portray their needs in the educational process. The study, conducted with participants from different programs, contains important insights for supervisors, higher education institutions and other stakeholders about improving the quality of education.

The results of the study revealed a series of obstacles that GSs experienced. A noteworthy finding was that about two thirds of the participants reported academic-related challenges. Among these, most of the GSs underlined issues related to identifying a research problem. In this regard, a high-quality research study begins with the development of a study question that guides planning, analysis, and reporting (Raich & Skelly, 2013). Therefore, identifying a research problem affects many stages of a study, since it impacts the choice of a method, as well as the study instruments. Establishing a research question depends on various factors, such as the person's interests and experiences, as well as gaps in the literature based on a comprehensive review (Hurst, 2023) and on academic maturity (Pansiri, 2009). The process of determining a research question is complex when all of these factors are taken into account. Consequently, this difficulty, which has been identified by several researchers, will always exist due to the nature of graduate education. In terms of other academic challenges, however, some students criticized the effectiveness of the graduate courses and complained that the content was inadequate. Considering the key role of postgraduate education for producing a qualified workforce (Okay-Somerville & Scholarios, 2013), this criticism needs to be taken into account by HEIs. Some other studies also argue about the effectiveness of graduate programs and discuss ways to improve graduate education. For instance, certain universities in the USA evaluated the quality of graduate programs from the students' perspective and sought to access innovative content with the help of experts (Hakkola & King, 2016). A similar effort is clearly needed for Türkiye, as well.

Another important issue that emerged from the research was the lack of an academic writing culture. A noteworthy fact is that academic writing is the subject that requires the most support in terms of GSs' needs. The problems with academic writing culture may be related to the lack of quality in graduate courses, as mentioned above. Accordingly, improving course content should be a starting point for overcoming the difficulties related to academic writing culture Moreover, according to Toprak and Yücel (2020), academic writing at the graduate level is alarmingly lacking in Türkiye with regard to quality and ethics. Similar challenges have been experienced in other countries (Singh, 2015; Tremblay-Wragg et al., 2021). However, it can be asserted that some ethical violations may be due to ignorance of academic writing culture, rather than deliberate misconduct, due to some participants' lack of knowledge of proper citation methods. In addition, a limited

number of participants stated that English language problems affected their understanding of articles, as well as their academic writing ability, creating a further challenge. Therefore, taking into account the subsequent related challenges under the same theme, academic writing content should be presented to GSs within or independently of research methods courses. Even within the scope of graduate education, including a compulsory academic writing course in the institute information packages specific to each department may be an important initiative.

Another of the most common difficulties the GSs reported was the travel time needed to attend their classes. A significant number of students who experienced this problem said they were obligated to spend hours travelling to attend their courses. To address this issue, distance education approaches, which have been proven effective particularly after COVID-19 (Al-Mawee et al., 2021; Rizun & Strzelecki, 2020), may be adapted in to graduate programs (especially in the social sciences) as a means to mitigate this problem to some extent. Moreover, financial issues were also a major concern, with graduate students who were not financially well off being obligated to work or find a scholarship to survive. Considering that scholarships are limited in Türkiye in both availability and amounts, the first option, employment, generally prevails. Also related to matters of employment, some of the participants were enrolled in a graduate program in order to advance in their field of work. However, in some cases, they reported having difficulty taking the necessary time away from work to attend their programs. This situation stands as one of the biggest problems facing "equality of opportunity in education" (Lazenby, 2016).

Time management was an additional problem reported by the GSs. In this regard, Amida et al. (2021) explain that effective time management skills are necessary for GSs to survive and thrive in a graduate program. Furthermore, various studies have demonstrated that effective time management practices can also decrease mental health issues (Mirzaei et al., 2012). For this reason, ensuring that students learn to manage their time effectively can increase academic success.

From the perspective of mentorship, supervisor-student relationships are viewed as crucial to success in graduate programs, having far-reaching implications for students (Barnes & Austin, 2009). Studies related to graduate programs inevitably involve the factor of the supervisor. An effective supervisor guides students through the program in a timely manner and is accessible (Curtin et al., 2013); and the literature suggests that students with better supervisor support tend to feel more connected and networked within their departments (Glass et al., 2017). However, the findings from the current study point to important problems in some of the students' communication with their supervisors. Various studies have shown that reasons such as supervisors' lack of interest in their students and lack of value for their opinions may cause candidates to leave their graduate programs (Al Makhamreh & Stockley, 2020; Lovitts, 2004). Higher education statistics in Türkiye support these claims, as they show that a significant portion of both master's and doctoral students leave before completing their programs (Council of Higher Education, 2024). Additionally, a study by García-Suaza et al. (2020) revealed that graduate productivity is positively correlated with the quality of both the program and the supervisor. Therefore, we believe that the criticisms made by the GSs about the quality of their supervisors should be taken into consideration in terms of increasing academic success.

In many countries such as the US, (post)graduate students are required to pay for their education, and therefore, their perceptions of what they receive have added weight, both for themselves and for the departments and institutions trying to attract them (Kaur & Shakila, 2007). However, in Türkiye, education is free aside from private universities. However, there are fewer private than state-run universities, and few of these have graduate programs. As a result of the availability of free education, it can be argued that there are undesirable situations in the behavior of colleagues towards GSs. Further, some of the participants indicated that they worked as research assistants at the same university in which they were attending a graduate degree program. Research assistantship is not a permanent position, and the opinions of faculty members and administrators are considered for academic promotion. For this reason, research findings regarding GSs' frequent exposure to offensive behavior (Cogenli & Barli, 2013), as well as being

forced to work in a wide variety of jobs (Erdemir et al., 2020) emerged in this study, as well. Similarly, it has been found that colleagues or lecturers may participate in mobbing GSs (or those working as research assistants). Considering that mobbing is hostile, unethical behavior and psychologically harmful (Leymann, 1990), it can be said that these behaviors may have played a role in the mental health issues experienced by the participants.

There has been a rapid increase in the number of both GSs and graduate programs around the world in recent years. In Türkiye, in particular, the increase in new universities established in the last 15 years, with the aim of establishing at least one university in every province, has prompted an expansion of higher education institutions (Acer & Güçlü, 2017). This rapid expansion has led to a debate about the quality of education provided by these universities, as most are staffed by newly appointed faculty members, rather than experienced academicians. Moreover, according to Ergüder (2009), a large gap in terms of quality has been identified in Türkiye between old and new universities, and the government has been unable to either sufficiently fund the new universities or meet their needs. Factors such as lack of infrastructure and limited access to research databases may result from this situation. The results of the current study indicate that the GSs' overall satisfaction levels were around average in general. As a result of the nonsignificant differences found in terms of departments, it can be concluded that the problems outlined above are common to most faculties. Consequently, higher education-related policies need to be improved with an emphasis on increasing quality through urgent action plans. As this study shows, quantity is not synonymous with quality.

In conclusion, GSs' needs are shaped by the factors they identified as obstacles in the process, as was expected. Several studies have shown that one of the major challenges faced by GSs is academic writing (Jeyaraj, 2020; Lavelle & Bushrow, 2007). According to Gopee and Deane (2013), students struggle in this process without access to instruction on appropriate and effective academic writing, either through institutional or non-institutional strategies. Some research results offer ideas on how to develop this skill. For instance, Can and Walker (2011) suggest written feedback to improve academic writing skills and highlight this process as one of the crucial means of communication between supervisors and students. However, in the current study, the GSs reported receiving incomplete feedback, drawing attention to their need for support in this area. It was also found that some of the participants stated that they needed moral support. Considering that providing such support may help mitigate students' mental health issues (Charles et al., 2022), it can be said that the various challenges that are thought to impact each other may decrease when graduate students' needs are met more effectively.

7. Limitations and Direction for Future Research

Although the results of this study contain important insights about the challenges and needs of GSs from a broad perspective, it should be noted that the study has some limitations. First, the data were collected through an online form, which helped the researchers to reach a large sample. However, since the data obtained was very general, each challenge and the needs presented are worth studying separately. Second, the findings painted a general picture, but some data not presented in this study showed that the problems may differ depending on the department. For this reason, similar research may be conducted according to specific departments.

On the other hand, the results indicate that certain factors affecting graduate students' experiences may be interrelated. Considering that the dropout rates in graduate programs are high, applying the factors affecting success to large samples quantitatively using models may provide clearer guidance on the precautions to be taken. Finally, in the current study, the institutes and graduate programs (master's or doctoral) where the GSs were enrolled were compared. It can be said that there is a need for studies comparing universities and faculties with larger groups participants to reveal GSs' satisfaction levels.

Author contributions: All authors have sufficiently contributed to the study, and agreed with the results and conclusions.

Declaration of interest: The authors declare no conflicts in interests.

Data availability: The datasets generated during and/or analysed during the current study are available from the corresponding author on reasonable request.

Ethical statement: All subjects who participated in the study have given their consent for participation, for data collection, and for the analysis of the collected data. The data was analyzed only in anonymized form, and personal information that could lead to the identification of the participants has been removed. No additional ethical approvement was needed.

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Appendix 1. Survey Questions

1. Please write down the factors that you think are most challenging in your graduate education process and explain the reasons for them.

2. What kind of expectations did you have before starting graduate studies? Do you think these expectations are met? Why is that?

3. What kind of support do you need during your graduate education?

4. Rate the quality of your master's degree program from 1 to 5. [1 low 5 high] [master's degree]

5. Rate the quality of your doctoral degree program from 1 to 5. [1 low 5 high] [PhD]

6. If I had to summarize my graduate education with a single sentence, this sentence would be:….